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PENSION SYSTEM IN THE UNITED KINGDOM AND THE SHIFT FROM DB TO DC SCHEME

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Abstract

This paper examines the key issues relating to the UK pension system. It reviews the current system of pension provision, describes the recent reforms, and checks the legal regulatory and actuarial framework for occupational pension schemes. Also, it outlines the different types of risks and returns from membership of defined benefit and defined contribution pension schemes and advantages and disadvantages of transferring out from the defined benefits scheme to defined contribution one. The main point was to examine if the financial regulatory guidance that “an adviser should start from the assumption that a transfer will be unsuitable” is outdated and whether a transaction is right for the individual and should be assessed on a case by case basis from a neutral starting position.

Keywords: Pension Funds, Cash Equivalent Transfer Value, Defined Benefit, Defined Contribution

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Acronyms

BSP – Basic State Pension

CETV – Cash Equivalent Transfer Value

COSR - Contracted-Out Salary-Related

CPI – Consumer Price Index

DB - Defined Benefit

DC - Defined Contribution

GMP – Guaranteed Minimum Pension

PAYG - Pay As You Go

PPF – Pension Protection Fund

RPI – Retail Price Index

SERPS - State Earnings-related Pension Scheme

S2P – State Second Pension

LTA - Lifetime Allowance

UK – United Kingdom

Chapter 1

Introduction

1.1 Context and Motivation

The dissertation subject was chosen based on my job, where as an actuarial retirement consultant we do individual benefits calculations for the United Kingdom occupational pension schemes.

In 2015, the government has introduced new "pension freedom" that means anyone aged 55 and over can take the whole amount as a lump sum, paying no tax on the first 25% and the rest taxed as if it were a salary at their income tax rate. The new rules alongside historically high transfer values given the high cost of providing a guaranteed income and continuing low interest rates and gilt yields have triggered a sudden boom in final salary pension transfers and led to people taking a variety of different choices when investing their pot. In most cases, transferring pension benefits out of a defined benefit scheme is irreversible and in some instances the merits or otherwise of the transfer may only become apparent years into the future. It is particularly important that firms advising on pension transfers ensure that their clients understand fully the implications of a proposed transfer before deciding whether to proceed. This requires that trustees or scheme managers check that 'appropriate independent advice' has been taken before allowing a transfer to proceed, where the proposed transfer involves a DB pension, or other safeguarded benefits, worth more than £30,000. (The personal finance society, 2017)

The information was gathered from a practical guide to pension transfers from defined benefit to defined contribution published by Financial Conduct Authority, papers from Mercer, Towers Watson consultancies, Royal London insurance company which provide an overview of actuarial work done, and what are the main points when the decision regarding the transfer is made.

We proceed with a case study in which individual decides to transfer from defined benefit to defined contribution scheme.

1.2 Dissertation Outline

This dissertation begins with an overview of the pension system in the UK in Chapter 2, and summarizes the development of state and occupational pensions and followed by Chapter 3 covering the definitions of defined benefit plans and defined contribution plans. In Chapter 4 the process of the calculation of a cash equivalent transfer value is described. After, in Chapter 5 the advantages and disadvantages of transferring benefits are outlined. Following by Chapter 6, where the case study was done regarding the options that can be taken into consideration when an individual decides transferring his/her benefits. Finally, dissertation conclusions are done in Chapter 7.

Chapter 2

Background

2.1 The overview of the pension system in the UK

The UK state pension system originally consisted only of means-tested[1] non-contributory benefits that were introduced by the Old Age Pensions Act 1908. The first contributory benefits scheme emerged in the Widows, Orphans and Old Age Contributory Pensions Act 1925. This scheme was not universal in coverage, however, and was only compulsory for manual and other low-wage workers. Lately, in the 1942, the Beveridge Report – Social Insurance and Allied Services was introduced in attempt to reduce the poverty among elderly population. Population was provided with a flat- rate income[2] in old age that would be only sufficient to lift them above an absolute measure of poverty. This income was to be funded through contributions paid during working life. These contributions were to be calculated on an actuarially fair basis. (Bozio, 2010).

2.2 Basic state pension

The Basic State Pension (BSP) was introduced in 1946, and it is a PAYG, flat rate scheme, as government has faced with the significant immediate spending of paying pensions to individuals who had not made contributions. The UK citizen is eligible for the BSP if he was born before 6 April 1951 for a male or 6 April 1953 for a female, who has paid or been credited with National Insurance contributions. The full BSP for 2018-2019 is £125.95 a week and in order to get it is need a total of 30 qualifying years of National Insurance contributions or credits, either: working and paying National Insurance; getting National Insurance Credits, for example for

[1] payment available to people who can demonstrate that their income and capital (their "means") are below specific limits

[2] level of payment that is the same in all cases

unemployment, sickness or as a parent or care; paying voluntary National Insurance contributions. If the member has fewer qualifying years than this, pension may be payable at a pro-rata rate. The pro-rata rate is found by multiplying the full BSP rate by the proportion of the requisite number of years for which an individual had a qualifying contribution record. The BSP increases every year by whichever is the highest of the following: earnings - the average percentage growth in wages (in Great Britain); prices - the percentage growth in prices in the UK as measured by the Consumer Prices Index (CPI[3]); or 2.5 percent. (Government UK).

In 1978, the SERPS (State Earnings-related Pension Scheme) was introduced aiming to provide everyone with an inflation-proof earnings-related pension, either through the additional state scheme or through a private occupational. The principal was that everyone would receive 25% of their earnings above a lower earnings threshold. The scheme was phased in over twenty years so that those retiring before 1998 received a SERPS pension proportional to the number of years that they had made contributions to it. Also, individuals were permitted to contract out of SERPS if their employer sponsored a contracted-out occupational pension scheme that promised to pay a guaranteed minimum pension (GMP). Such schemes were known as contracted-out salary-related (COSR) schemes and the benefits are called ‘protected rights’. In 2002, SERPS was replaced by the State Second Pension (S2P). The goal was to provide better conditions for low income population and for whom a private pension was not an option and, but it is also intended to help those with moderate earnings to build up a better second pension. S2P was introduced as an earnings-related pension initially but from April 2007 became a flat-rate benefit, even though contributions are earnings-related.

A new State Pension was introduced on 6 April 2016 for people reaching State Pension age on or after that date. Employers and employees lost the contracted-out rebate and therefore started paying higher rate of national

[3] measures changes in the price level of market basket of consumer goods and services purchased by households.

insurance contribution. It depends on the employment status and salary. If the individual is employed he pays 12% for the income between £162 to £892 a week and 2% if over. This applies to men born on or after 6 April 1951 and women born on or after 6 April 1953. The new State Pension maximum amount is £164.35 a week for 2018-2019. The amount received is usually based on the National Insurance contributions paid during working life. The individual must have paid or been credited with 35 full years of contributions or credits in order to receive the full amount. The graduated lower amount would be paid for 10 to 34 years of contributions, while the person with less than 10 years is not entitled to receive at all. The pension state age is gradually increased, and in April of 2018 for women's State Pension age is 64 and 6 months. State Pension age will be equalized at 65 years for men and women by November 2018 and then will be lifted to 66 years by October 2020 and 67 years by April 2028. (Government UK).

2.3 Occupational pension scheme

The United Kingdom was one of the first countries in the world to develop formal private pension arrangements and was also one of the first to begin the process of reducing systematically unfunded state provision in favor of funded private provision. (Blake, 2003).

Occupational pension schemes are sponsored by employers, but they are set up under the trust to safeguard the members. A percentage of the salary is put into the pension scheme automatically every payday. In most cases, the employer also contributes into the pension scheme for the member. The government usually adds money to the workplace pension in the form of tax relief if an individual pays Income Tax and into a personal pension or workplace pension.

The document which defines the terms of the trust and the rules of the pension scheme is called The Trust Deep and Rules which is the legal document that contains definitions, plan eligibility and participation, formula for calculating the benefit, form of payment, funding, maximum benefits and amendment or termination of the plan. When the person becomes the member of the pension scheme the following things can happen:

- the individual can decide to opt out of the scheme but remains in the employment (the person can leave his accrued pension benefits in the scheme until he decides to start drawing retirement benefits or can transfer accrued benefits to a another workplace pension scheme or a personal pension scheme);
- he/she reaches the retirement age and take the pension from the scheme;
- he leaves the employment and stays at the scheme (he can continue making contributions to the pension, but won't receive any further contributions from old employer);
- he leaves the employment and the scheme (the person can leave his accrued pension benefits in the scheme until he decides to start drawing retirement benefits or can transfer accrued benefits to a new employer's workplace pension scheme or a personal pension scheme);
- he dies before or after reaching the retirement age (DB schemes usually offer lump sum death benefits and dependant's scheme pension. The lump sum death benefit will be a set amount or a multiple of salary. Lump sum death benefits are tax-free if the member dies under age 75, the lump sum is within the member's lifetime allowance and it is paid within two years of the scheme administrator becoming aware of death. Dependant's scheme pension may be in the form of pension for spouse, partner, or civil partner and /or children's pension (normally paid to a certain age, longer only in the case of a physically or mentally impaired child). A dependant's scheme pension does not have to be paid for the life of the dependant, it may be stopped or reduced at any time in accordance with the rules of the scheme or the terms of the annuity contract, can't be guaranteed for a certain term or have pension protection or can be provided to someone else on the death of the dependant. (Mercer, 2017).

Chapter 3

Types of Pension Schemes

There are several types of basic pension schemes that are commonly offered by employers. Listed below are the most common types of pension plans:

3.1 Defined Benefit Pension Scheme (DB)

Under a Defined Benefit scheme the member and their employer makes the contributions into a trust account which contains all of the money necessary to pay all the benefits due, to all members of the scheme. The amount of the pension is defined using a formula based on member's salary, the length of service and an accrual rate at the date of leave or retirement.

$$B_s = a \times t \times W_s \tag{3.1}$$

Where $W_s$is the pensionable salary at retirement age s, t is the years of service continuing from the hire date until retirement age or date of exit, a is accrual rate (usually 1.25%, 1.67% or 1.25%).

The employer effectively promises to pay the employee a pension benefit based on the formula and it's employers responsibility to ensure that there is enough money in the trust account to meet all of the liabilities. These pensions usually include attaching benefits such as increase in payment and spouses pension on the death of the member.

Most employees value a DB scheme very highly, as they will get a guaranteed amount of pension in exchange for their contributions without having any investment risk. On the flip side to this a DB scheme is very expensive for the employer because if the investments underperform and the fund drops below the level where it can meet the liabilities, the employer has to put extra contributions into the fund. In recent years many employers have had to make very sizeable extra payments into the pension schemes. (House of Commons Work and Pensions Committee, 2013).

3.2 Defined Contribution Pension Scheme (DC)

Under a Defined Contribution (DC) scheme the member and the employer make contributions into an account in the member's name, this account is often referred to as a 'pot'. Contributions are known in advance and are usually specified in scheme rules. The member chooses how to invest the pot with an aim to increase its value through interest and bonuses each year, as investment is often unpredictable the member will not know how big his pot will be until he/she retires. Member may have choice between different investment options such as investing in company shares (equities), government securities (gilts), or cash. This allows them to hold investments depending on the level of risk they are prepared to take. When the member reaches retirement age he/she will use the pot to buy a pension, this is known as an annuity. The amount of pension a member can buy with their pot will vary with annuity rates. A member can also choose what sorts of benefits to include in the annuity, for example they can choose whether it will increase in payment or whether their spouse will be provided with a pension on their death. DC benefits can be drawn down on a flexible basis if the scheme allows it. (Mercer, 2017).

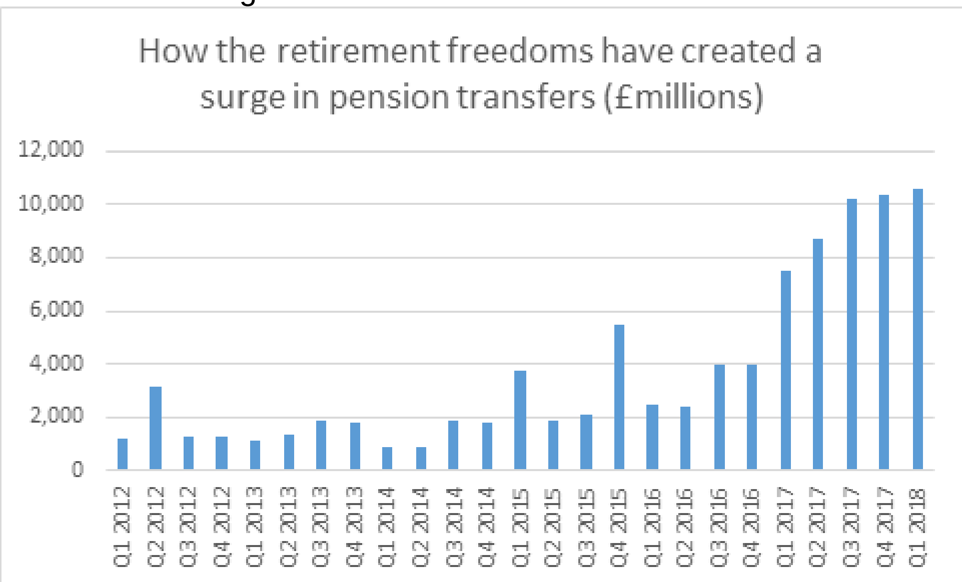
Chapter 4

Cash equivalent transfer value

In the recent years there is a growing trend for employers to close their DB schemes and use a DC alternative, where the risk associated with investment returns lies with the employee as a poor return simply means the pot will be smaller.

The past three years have seen a boom in DB transfers. Funds transferred out of pension schemes hit a record £10.6 billion in the first quarter of the year, according to data from the Office for National Statistics. The pension transfers volumes have surged last year to £36.8 billion from £12.8 billion in 2016 according. The number of transfers in 2017 has topped 100,000, up from 61,000 in 2016. (Robins, 2018)

Figure 1. Amount of transfers from DC to DB



Source: Office for National Statistics - Investment by insurance companies, pension funds and trusts (MQ5)

This increased demand for DB transfers has been driven by the April 2015 pension freedom reforms. While many people were previously required to use their DC pension pot to buy an annuity, a product with many of the hallmarks of a DB pension, they now have more flexibility. For example, a saver can take a pension as cash or gradually draw down invested funds. The tax treatment of inherited DC pots is also now more favourable. Furthermore, low interest rates act to inflate transfer values and confidence in DB schemes has been undermined by some high-profile failures of scheme sponsors.

4.1 CETV calculation

A cash equivalent transfer value (CETV) is the cash value placed on the pension benefits. This is the amount that is available to transfer to an alternative plan in exchange for giving up the rights under the scheme.

In order to perform the CETV calculation following data of the member usually is needed:

- date of birth
- gender
- date of commencing pensionable service
- date of leaving
- final pensionable salary
- accrual rate
- normal retirement date

In the first step deferred pension at date of leaving is calculated using formula (3.1). For the most of the UK pension schemes the benefits should be split by tranches, as members may have different normal pension ages for different tranches of benefit. Also, the benefits will need to be subdivided according to the dates that they accrue owing, the differences in revaluation that may apply to different tranches of compensation in deferment and payment.

The most typical divisions are:

- Pre 6/4/1988 GMP service
- Post 6/4/1988 GMP service
- Pre 6/4/1997 Excess over GMP

- Post 6/4/1997 Excess
- Post 6/4/2006 Excess
- Post 5/4/2009

The difference in the tranches is described in the tables 4.1, 4.2 and 4.3.

In the second step, the benefits should be revalued to the normal retirement date.

4.2 GMP

There are three ways of revaluing the GMP in deferment. They are:

- Section 148 orders revalue the guaranteed minimum pension broadly in line with National Average Earnings. A different rate of revaluation will therefore be applied for each complete tax year between leaving and GMP age (65 males, 60 females).
- Limited revaluation revalues in line with Section 148 orders, limited to a maximum of 5% per annum. When a scheme applies limited revaluation a ‘Limited Revaluation Premium’ (known as a LRP) is paid to the Department For Work and Pensions by the scheme when a member left service. This covered the estimated cost of the state providing any increases above 5 percent, up to full revaluation under Section 148 orders. Limited revaluation was abolished for leavers on or after 6 April 1997. However, it is still possible for preserved pension accrued before 6 April 1997 to have limited revaluation applied to the GMP element.
- Fixed rates are provided by the Government Actuary and are intended to be equivalent to the future increases in Section 148 orders. The rates are adjusted every few years to reflect changing economic conditions. The revised rate applies to all leavers after that date of change and the GMP will be revalued over the number of complete tax years between the member's date of leaving and state pension age. Prior to April 2016 if National Average Earnings exceeded the fixed rate of revaluation applicable to the leaver, the

government would make up the difference via an addition to the person's state pension. Since the introduction of the single tier state pension, this no longer applies and there is no increase on top of the fixed rate of revaluation provided by the scheme. This is irrespective of the rate of national average earnings increases which would have applied through Section 148 orders. (Waddingham, 2012)

Table 4.1 Fixed revaluation

Date of leaving	Revaluation rate % p.a.
6/4/2017 – 5/4/2022	3.50%
6/4/2012 – 5/4/2017	4.75%
6/4/2007 – 5/4/2012	4.00%
6/4/2002 – 5/4/2007	4.75%
6/4/1997 – 5/4/2002	6.25%
6/4/1993 – 5/4/1997	7.00%
6/4/1988 – 5/4/1993	7.50%
6/4/1978 – 5/4/1988	8.50%

Source: Waddingham, 2012

As we can see in the past, fixed rate GMP revaluation has generally been reviewed every 5 years. We can note the rates have been decreased over the time given lower RPI rates in the last years. (Retail Price Index is the measure of inflation published monthly by the Office for National Statistics. It measures the change in the cost of a representative sample of retail goods and services).

4.3 Excess

Preserved benefits in excess of Guaranteed Minimum Pension (GMP) must be increased for each complete year in the period of deferment. The increase applied is notified each year when the Secretary of State makes an Occupation Pensions (Revaluation) Order known as Section 52a orders. Each revaluation period begins on a 1 January and ends on the 31 December prior to the order coming into effect. The Excess over GMP revalues to the date of calculation according to the following rules:

Table 4.2 Excess revaluation

Date of leaving	**Revaluation rate**
On or after 1/1/1991	Section 52a orders on all excess pension
1/1/1986 – 31/12/1990	No revaluation on benefits in excess of GMP earned prior to 1 January 1985. Section 52a orders on benefits in excess of GMP earned after 1 January 1985.
Before 1/1/1986	No revaluation

Source: Waddingham, 2012

In 2011, the official Occupational Pensions Revaluation Table was switched from RPI to the CPI basis instead.

The benefits from date of calculation to the normal retirement age are usually revalued for Pre 5/4/2009 service according to CPI index with the maximum cap of 5 percent per annum, while the Post 5/4/2009 cap was lowered to 2.5 percent.

After the revaluation the benefits are multiplied by the annuities which have different minimum escalation[4] rates according to the dates when they have been accrued.

[4] each year pension increase in payment.

Table 4.3 Escalation

Tranches	**Escalation rate % p.a.**
Post 5/4/2005 Excess	CPI up to 2.5% per annum
Post 5/4/1997 Excess	CPI up to 5% per annum
Pre 5/4/1997 Excess	0%
Post 6/4/1988 GMP	CPI up to 3% per annum
Pre 6/4/1988 GMP	0%

Source: Waddingham, 2012

Then the benefits have to be discounted for the period between date of calculation and normal retirement date.

Chapter 5

Pros and cons transferring from DB to DC

5.1. Advantages

High Transfer Values

DB schemes promise to pay members a certain amount and in order to meet these obligations the trustees invest in low risk investments such as Government bonds and gilts. Due to recent low gilt yields the cost of meeting these obligations has increased and therefore the transfer values on offer for some schemes have been extremely generous, but that may not be sustained for the long time.

Flexibility

DB pension rights can be rigid and inflexible even though they are valuable. The scheme pension age is set and although taking the pension earlier may be possible, the benefits will be lower if a member had waited until he/she reached pension age. Also, schemes usually have high benefits for the surviving spouse but these may be of no value to unmarried members of the scheme.

Converting DB pension rights into cash, allow much more choice about how money can be used and it’s possible to decide how to spread the income and spending through the retirement rather than having a rigid amount throughout. For example, the member can spend more in earlier retirement while people are more mobile and able to travel, and spend less later in retirement.

Tax-free cash

Whilst income from a private pension is subject to income tax, most pensions allow taking one quarter in the form of tax-free cash. In a DB pension this usually means the pensioner will get a cash lump sum at retirement plus a lower regular pension than if he/she had not taken the cash. In a DC pension the pensioner can generally take one quarter of the pension pot as a tax-free cash lump sum provided at aged 55 or over. And in many cases, under current market conditions, these results in a higher amount of tax free cash being available under a DC arrangement. Depending on the financial circumstances, access to as much tax free cash as possible may be number one priority if the person has debts to pay off such as a mortgage. Paying these off might mean having more disposable cash even with a lower income.

Death Benefits and Inheritance

One of the key changes Pension Freedoms has brought about is the ability for beneficiaries to inherit their spouse's entire remaining pension benefits without having to pay tax if they pass away before age 75. For many people this factor alone will be the reason they want to transfer as often the death benefits available for a DB member will be much less. If the person transfers his benefits and passes away after age 75 then anything that remains can still be passed on and is normally taxed at the beneficiaries' marginal rate of income tax when they take withdrawals from the fund.

Health

If a member has health issues that might mean the life expectancy is not as long as the average for someone the same age then DB scheme does not take account of this. This means when he passes away the dependants will receive reduced benefits depending on the rules of the scheme. If a member doesn't have dependants then the benefits from DB scheme will simply stop when a member passes away unless there is a guaranteed period the pension has to be paid for. If a member transfers to DC arrangement then he could take advantage of an enhanced annuity which could provide an attractive alternative for those who are not in good health and could provide a higher income than if he took the income available from the DB scheme. It may be the wish to prioritize passing money as a lump sum to beneficiaries on death. If a member is in serious ill health and transfer benefits then if he passes away within two years there could be a potential Inheritance Tax liability.

Scheme Solvency

In the current climate with some pension schemes being underfunded and there is a possibility of not receiving all the benefits that a member is expecting when he retires. The Pension Protection Fund is available to protect members of DB schemes that are not able to meet their liabilities. However, it is important to understand the caps and restrictions on pension benefits that may apply in these instances. (Scottish Widows, 2018)

5.2 Disadvantages

Investment risk

The transfer to DC pension will bring the responsibility for how the investments perform rather than leaving this to the trustees of the DB scheme. A member has carefully to consider his attitude to risk. This could mean that the value of the fund increases significantly but it could also mean it falls in value and there are no guarantees.

Longevity and Inflation risk

The DC arrangement has no guarantee the benefits won’t run out before a member passes away. For most DB schemes the income a member receives will increase each year to help protect it against inflation. Whilst it is possible to insure against rising prices by, for example, turning the pension pot into an inflation-linked annuity, this is likely to be very poor value compared with the pension that was given up. Essentially, a DB pension scheme is able to make much more cost-effective provision against the risks of inflation than an individual can do by buying an index-linked annuity from an insurance company.

Provision for survivors

Since 1997, DB pension schemes have had a legal duty to provide a pension for a surviving widow or widower if a scheme member dies after reaching scheme pension age and many schemes will offer benefits for widows, dependent children beyond the legal minimum.

Any cash offer which is made to a scheme member will to some extent reflect the fact that the scheme offers benefits to survivors. But because not all scheme members will be married or have dependants, the cash value on offer will tend to reflect the average value of such benefits across all scheme members, including those who will get no survivor benefits.

Therefore, the amount of money is needed to reflect the fact that the DB scheme offered survivor benefits would probably be well short of what is needed to buy equivalent benefits as an individual.

Lifetime allowance limits

There is a limit to the amount of pension savings that can be built up without being taxed. This is known as the Lifetime Allowance (LTA) and for the last few years the Government has reduced this amount. It currently stands at £1.03 million. For DB pension schemes, the value for LTA purposes is calculated by multiplying the first years' annual pension by 20 and adding any tax free cash on top of this. This figure can often be lower than the transfer value being offered by the DB scheme where valuations can be 30 times the expected first year's annual pension. If transferring DB benefits exceed the LTA a tax charge may incur then transferring may not be the right option. (Royal London, 2018)

Chapter 6

Case Study: Pension Fund Characteristics, assumptions, data and liabilities

For this case study we have used a classic pension fund.

The pension plan is a defined benefit, with an accrued rate of 1.75% per year of service of the highest 3 year average of pensionable earnings in 10 years prior to normal retirement date of date of exit.

Formula 6.1 shows the pension for a member of the fund at the age of the retirement benefit:

$$B_s = 1.75\% \times t \times W_s \tag{6.1}$$

Where W_s is the highest 3 year average of pensionable salaries at the date of exit or at retirement age projected by the annual salary increase rate to the assumed retirement age, 65, and *t* is the years and completed months of service continuing from the hire date until retirement age or date of exit.

In this section we will perform the calculations in order to analyze if a member could get better pension by saving for her/his retirement by transferring out the benefits from DB to DC scheme under certain circumstances.

6.1 Assumptions

Table 6.1 shows the usual assumptions used by private pension funds in the UK. The date of calculation was assumed 31st of January.

Table 6.1 Real assumptions

Actuarial Assumptions DB fund	**31/01/2018**
Discount Rate pre-retirement (%)	2.4 (Fixed yield +0.75%)
Discount Rate post-retirement (%)	2.4 (Fixed yield +0.75%)
Mortality Table	CMI_2015_1.25%
Weighting (%)	100 - M, 100 - F
Guarantee (years)	5
Spouse pension proportion (%)	50
Percentage married (%)	85
Pension increase rate (%)	3
Past revaluation	S52 table
Future revaluation CPI (%)	2.45

The rates used to discount benefits were determined by reference to the market yields at the end of the reporting period on government bonds. The other assumptions, namely mortality table, annual salary increases and pension increases remained unchanged during 2018-2028 period.

6.2 Individual case

Table 6.2 shows real data of the deferred 55-year-old member used for this case study.

Table 6.2 Member data

Member	31/01/2018
Gender	Male
Highest 3 year average of pensionable earnings in last 10 years (£)	56,500
Date of birth	31/01/1963
Date of joined the scheme	01/07/2000
Date of leaving the scheme	10/12/2004

Table 6.3 gives the results of cash equivalent transfer value calculations.

Table 6.3 CETV Results

Liabilities	Member
Benefits at date of leaving (£)	4,366.98
Revaluation to the ret. date (£)	7,621.16
CETV (£)	185,166

We got £4,366.98 by multiplying £56,500 average salary by 1.75% accrual rate and 4.42 years of service. In order to compute the benefits at the current date we use s52a-s84 table and find that 13 years have passed since the date of leaving, that corresponds to 1.37 rate. Then we apply future revaluation that is calculated as CPI at the power of years between current date and date of retirement (1.274). After that we apply the joint life annuity at age 65 and discount to the current date and get CETV that equals to £185,166.

At age 55 the member can whether take £46,292 (25 percent allowed) as the free tax lump sum and transfer the rest £138,874 to the DC scheme or transfer the full amount. At age 65 the member can buy the pension annuity depending on his preferences.

If the member chooses to transfer the full amount then according to the current annuity rates[5]:

- 18.22 for single life level annuity with 10 years guarantee
- 26.44 for single life annuity with 3% escalation no guarantee
- 29.1 for joint life and 3% of escalation

In order to get the same benefits at retirement, the rate of return of DC fund (taking into account 2.45% CPI) depending on the type of annuity chosen should be at least:

- the benefits will be higher even if the rate of return will be 0% (£7,978)
- 5.9%
- 6.9%

Meantime if he chooses to take 25% lump sum, the rate of return should be at least:

- 5%
- 8.9%
- 10%

while the return rate of the pension funds in UK was on average 6% in the last 10 years (Office for National Statistics, 2018).

Also, The Financial Conduct Authority tells investment, life and pension providers how they must calculate the potential future value of life assurance, pension and investment accounts for use in illustrations. (Financial Conduct Authority, 2017).

If we assume the individual will invest 50% in the government bonds with 0% real expected rate of return and 50% in the equities with 5% real expected rate of return, we get only 2.5% an average real rate of return. It shows that if the member transfers the money to DC fund he can expect to receive £13,009, £8,965 and £8,145 pension, respectively depending on the type of annuity chosen and with no lump sum amount.

6.3 Sensitivity Analysis

[5] http://www.sharingpensions.co.uk/annuity_rates.htm, retrieved on 9, 10, 2018

Sensitivity analysis is an effective and easy way to calculate the risk of interest rate. We set the yield curve on 50 basis points upward and 50 basis points downward and check value of liabilities. Also, other adjustments can be considered in the assumptions as salary increase rate, mortality tables, pension increase rate.

Table 6.4 shows the results of the discount rate sensitivity test, considering an impact of +/-50 basis points on 2018 with a base scenario of 1.65%:

Table 6.4 Results of interest rate sensitivity analysis, at 31/01/2018

Liabilities	i – 50 b.p.	base	i + 50b.p
CETV (£)	210,801	185,166	163,164

The impact on the transfer value when we change the interest rate, was as we had expected. When the interest rate has decreased, we got an increase on liabilities and the other way round. The pension will be £9,273 and £7,177, respectively, considering joint life annuity with no lump sum amount taken and 2.5% real rate of return.

6.4 PPF Analysis

The Pension Protection Fund (PPF) pays compensation to members of eligible defined benefit pension schemes, when there is a qualifying insolvency event in relation to the employer and where there are insufficient assets in the pension scheme to cover Pension Protection Fund levels of compensation.

We analyze if a member receives higher pension by transferring out the benefits from DB to DC scheme if the scheme is at risk of insolvency.

According to the legislation, the members receive 90% compensation of benefits for members below Normal Retirement Age (NRA). Those over NRA would qualify for 100% of benefits and those on ill-health early retirement pensions. Anyone receiving survivor’s pensions, such as a widows/widowers/children's/civil partner’s pensions will also normally qualify for 100% of benefits. (The Pensions Advisory Service)

If our initial member doesn’t transfer out the benefits before the scheme becomes insolvent, the member will get only £6,859 pension at date of retirement, 18.5% lower than transferring without taking the lump sum and buying the joint life annuity and 11% higher than buying the joint life annuity and taking the free cash lump.

Chapter 7

Conclusions

The UK pension's landscape has changed fundamentally in 2015 when freedom and choice were introduced. However, the current rules on advising members who are considering leaving a DB scheme to access the new freedoms do not reflect this. (Patterson, 2017). The Financial Conduct Authority (FCA) has said that in a recent review of 'high street' financial advisers, 53% of DB transfers were carried out following unclear or unsuitable advice. This suggests that members transferring out of DB schemes may not always be getting the best advice and so trustees and employers need to think about how much support they should be giving their members on one of the most important decisions they will ever make. (Mercer, 2018).

Also, it led to boom in pension scams. Nearly one in 10 of people aged 55-plus fear they have been targeted by suspected scammers since the introduction of pension freedoms. Highly sophisticated scammers lure people into transferring their pensions into fraudulent schemes, stealing an average of £91,000 per victim. (Financial Conduct Authority and The Pensions Regulator, 2018).

The flexibility on DC schemes require a more informed employees in order to evaluate clearly what are the risks inherent to their decisions, either to decide to option out or not, either to decide after the decision to option out what will be annuity of lump sum modalities that better suites their needs.

The case study focuses on real data of an individual that is deferred member of the defined benefit pension scheme. The main goal of this dissertation is to measure the impact of transferring out of the workplace defined benefit scheme to defined contribution.

For the period in study, we conclude the benefits of a DB pension may not be relevant to some people and there are good reasons to consider transferring out particularly with transfer values at such high levels, because of the current lower market values of the discount rates, people may want to at least consider it because there are several potential advantages, particularly after the changes which have made DC pensions far more user-friendly, tax efficient and effective for later life planning. In the past, transferring out of a Defined Benefit scheme offered much lower values and people would often need to buy an annuity which represented worse value than their scheme benefits. But in the new DC landscape, members have more flexibility and choice as to how to use their pension fund as best suits their needs.

The result of the case study shows that the shift from DB to DC is preferable for the single person than for the member who is willing to provide a pension for a surviving widow or widower. Also, it’s more profitable to transfer at the present moment as the CETVs are historically high due to low guilt yields environment which will probably increase in near future reducing as a consequence the CETVs. Additionally, as the many defined pension funds nowadays report rising unfunded liabilities, the employee could protect his benefits by transferring out before the pension fund becomes insolvent and the member receives only the part of his/her benefits.

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Appendix

Table1. s52a-s84 revaluation

Years of Deferment														
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
2018	3.0	4.0	3.9	5.2	8.0	10.4	16.1	19.7	18.1	24.0	28.8	33.4	37.0	41.3
2017	1.0	0.9	2.1	4.9	7.2	12.7	16.2	14.6	20.3	25.0	29.5	33.0	37.2	41.0
2016	0.0	1.1	3.8	6.1	11.6	15.1	13.5	19.2	23.8	28.3	31.7	35.8	39.6	42.0
2015	1.2	3.9	6.2	11.7	15.2	13.6	19.3	23.9	28.4	31.9	35.9	39.7	42.1	44.5
2014	2.7	5.0	10.4	13.8	12.2	17.9	22.5	26.9	30.3	34.3	38.1	40.4	42.8	47.5
2013	2.2	7.5	10.8	9.3	14.8	19.2	23.5	26.9	30.8	34.5	36.7	39.1	43.7	45.2
2012	5.0	8.5	6.9	12.3	16.7	20.9	24.1	28.0	31.6	33.8	36.1	40.6	42.1	46.7
2011	3.1	1.7	6.7	10.9	14.9	18.0	21.7	25.1	27.2	29.3	33.6	35.1	39.4	44.4
2010	0.0	3.5	7.6	11.4	14.4	18.0	21.3	23.4	25.5	29.6	31.0	35.2	40.1	43.0
2009	5.0	9.1	13.0	16.1	19.7	23.0	25.1	27.2	31.4	32.9	37.1	42.1	45.1	50.7
2008	3.9	7.6	10.5	14.0	17.2	19.2	21.2	25.2	26.6	30.6	35.3	38.2	43.5	46.7
2007	3.6	6.4	9.7	12.8	14.7	16.6	20.5	21.8	25.7	30.2	33.0	38.2	41.2	43.7
2006	2.7	5.9	8.8	10.7	12.6	16.3	17.6	21.3	25.7	28.3	33.4	36.3	38.7	43.7
2005	3.1	6.0	7.8	9.6	13.2	14.5	18.1	22.4	25.0	29.8	32.7	35.1	40.0	45.7

Source: Willis Towers Watson UK Statistics